International Journal of Botany
and Research (IJBR)
ISSN(P):2277-4815; ISSN (E): 2319-4456
Vol. 6, Issue 1, Feb 2016, 5-12

TRANS STELLAR
•Journal Publications •Research Consultancy

FIGHTING MEASURES THE DISEASE CAUSES A VERY DANGEROUS FUNGAL SPECIES WIDESPREAD IN TASHKENT REGION

S. A. MISIROVA[1] & N. N. ERNAZAROVA[2]

[1]*Tashkent State Agrarian University, Tashkent, Uzbekistan*

[2]*Academic lyceum under Namangan Engineering-Technology Institute, Namangan, Uzbekistan*

ABSTRACT

Selected in the experiment 15 species of ornamental flowers are determined the morbidity rate with the disease of Fusarium oxysporum Schl. in the Tashkent region. Selected from decorative flowers (Antirrhinum L. Aster L., CHRYSANTHEMUM, Dahlia Cav., Dianthus L., Gerbera L., Gladiolus (Tour.) L., Hyacinthus (Tour.) L., Iris L., Lilium (Tour.) L. Narcissus L. Palonia L. Phlox L. Rose L., Tulipa L.) only at the roses and chrysanthemum were not observed with disease of Fusarium oxysporum Schl morbidity. Biological effectiveness of the introduction of the antagonist soil rot, wilt in particular - Trichoderma lignorum into the soil at the rate of 4 g / l of biological efficacy was at asters - 33.0% and chrysanthemums - 44.0% and daffodils - 47.7%. Increased application rates of Trichoderma to 8 g / l to get more healthy seedlings.

KEYWORDS: Ornamental Flowers, Fungi Types, Systematic of Disease. Botrytis Disease, Species of Fungi, Degree of Damage, Phytopothegen Fungi

Received: Dec 28, 2015**; Accepted:** Jan 08, 2016**; Published:** Jan 19,2016**; Paper Id.:** IJBRFEB20162

Original Article

INTRODUCTION

Protecting plants from disease is an important part of the process of growing plants, the main production objective of which is expressed in the elimination or reduction of crop losses. With respect to parks and urban spaces, this problem can be formulated as conducting complex protective measures to reduce the loss of green building products and reduce harmful effects on plants (L.A. Misko, 1986).

As pointed I.Van der Plank (I.Van der Plank, 1966), the purpose of protective measures is to reduce the amount of primary inoculum, or the speed limit of the pathogen, ie reduction of its population. Accordingly, from a scientific point of view, D.A.Robertsu, the methods of struggle should be classified depending on how they prevent the growth of the pathogen to the size of reaching the economic threshold. Specialists can work in the first place, phytosanitary measures - reducing the amount of initial inoculum so that he could not acquire importance in the vegetation period, and secondly, you can slow down the rate of increase in the amount of inoculum during the growing season, such as the use of protective fungicides (D.A.Robertsu, 1981).

In the direction of action of all the methods can be grouped for prevention (preventive) and therapeutic (curative).

Called preventive methods whose purpose - preventing the occurrence and spread of the disease. According to many authors (I. Van der Plank, 1966, Tarr, 1975, D.A.Roberts, 1981, Popkov, 1989, et al.), Phytosanitary measures are aimed at suppressing the sources of infection. The sources, due to which there is an

infection of plants in the next growing season, can be infected plant residues, wintering diseased plants, seeds and planting material and other. Hence, the basis of these methods is to create unfavorable conditions for the existence of pathogens and increased resistance of cultivated plants to diseases.

Therapeutic method called effect on pathogens or chemical biologically active substances, in which, in the best case there is complete destruction of pathogenic and often decreases the number and rate of population growth, the spread of infection, respectively. In addition to agricultural practices, selection and seed-growing activities, limiting the development of fungal diseases An important role is played by the chemical method.

The advantage of these measures is a high efficiency and speed of action, availability, ease of use. However, along with the positive aspects of the use of the chemical method has significant drawbacks, which are at risk of pesticide contamination of the environment, but with the right application and the selection of the range of products you can minimize the negative effects of pesticides (Y.V. Sinadsky et. al. 1982).

The chemical method is the fastest, easily accessible and in the case of ornamental floriculture profitable. The effectiveness of the above method is largely determined by the presence of the necessary range of pesticides, which is currently very high.

Reliable plant protection can only be achieved using a system of integrated protection of the struggle, a combination of agro-technical, mechanical, chemical and biological weapons, if possible, depending on the specific task at hand (Y.V. Sinadsky et. al. 1982).

One of the issues facing us were testing the system to protect ornamental crops on the development of diseases, which were applied specific measures, in particular the use of the fungus Trihoderma lignorium antagonist agents of soil rot in the fight against fusarium, treatment of planting material, the use of specific fungicides, rules of their application.

A few details on the effectiveness of fungicides to fight diseases of ornamental crops, and the lack of data on the use of new fungicides to combat fungal diseases, have formed the basis for the study of the impact of these chemicals on plant disease susceptibility. We have studied the possibility of applying fungicides in plant protection capabilities ornamental crops.

In the work of (S.A.Misirova, 2015) determined samples of 658 herbaria from 15 decorative flowers of plants in the field and greenhouses in Tashkent region. Of them pathogen disease separation determined 65 types of fungi to 9 form and 1 variants.

The aim of this work determination measure of struggle against diseases caused by fungi is very dangerous species widespread in the Tashkent region

RESEARCH METHODS

A crucial role in the introduction of new plant culture plays a selection of certain varieties (S.I. Vanin, 1933). This raises the need for their comprehensive study. Farming growing new plants often requires addressing a number of specific issues. Identification of varieties of roses, the most resistant to diseases and pests, held against the backdrop of preventive and chemical control measures (I.V.Ruzaeva, 2007). The observations were made in the period of maximum development of the disease by the method Yu.F.Kulibaba (1968) and S.A.Simonyan (1973).

The degree of damage was determined in plants under natural conditions without artificial infection. Observations were made on plants of different ages in the period of maximum development of diseases of the visual method on 4-point scale. For each class determined the degree of development of the disease (in percent).

We used the following scale intensity lesion in points:

0- diseased missing;

1 single spot, hit up to 5% of the plant;

2 to 25% hit the plant surface;

3- Affected up to 50%, clearly visible fruiting fungus;

4- Affected more than 50% of the plants leaves osyshayutsya. Degree (intensity) of the disease is calculated by the formula:

$$P = \frac{\sum (a \cdot b) \cdot 100}{NK}$$

Where P is the development of the disease in%

a- number of the affected plants,

b- point defeat,

N- total number of accounting plant

K- highest score taking into account the scale of intensity lesions, ie 4.

Mathematical processing of digital research results carried out using conventional statistical methods (G.N. Zaitsev, 1984 and B. Borovikov, 2001) with the use of specialized computer software package EXCEL and Maple 9.5.

RESULTS

Determining Degree of Damage the Disease Fusarium Occurring in the Decorative Flowers

Research of the work is to examine one of the main objectives of desease pathogen of fungi species of biological properties. Because, this information will be established development of basis of measures to fight against diseases. This problem in conditions region for new values first with pathogens the relationship between the plant boss were decided to learn. we are gave special attention basically infection of the majority of flower plants, which is very of dangerous for the floriculture industry to diseases. According to the study, it provokes such diseases belonging to the family of Fusarium species.

Fusarium fungi species belonging to the family of F. oxysporum f. sp. Gladios, F. oxysporum f. sp. Lilian F. oxysporum f. sp. Tulipae all members of the sick plants wither fuzarioz irritating. F. sulmorum F. avenaceum F. gibbosum F. heterosporium, F. moniliforme, F. redolens F. basis of the root system and the stem at the base of the plants and be able to participate in the process of rotten onions.

Fusarium species infection the patient is fertilized, onions, prepared qalamchalarida plant overwinter in the soil and crop residues sick. through the vessels of the plant through the root tissue plant in the spring, after all the members of

dying patients. The leaves will be yellowish spots around the vessels. They can take all the leaves developing tank. Ill slow the spread of plants through water and mineral nutrition, because fungi mitseliyalari blocked blood vessels. As a result, the plant leaves are discolored, withered, dry.

In the process of doing research work in the region is the most common and most of dangerous pathogen fungi species of flower plants to determine the level of disease initiation of patient given special attention. We have obtained the results shown in Figure 1.

This picture shows fuzarioz disease of roses and chrysanthemum flowers infection of the rest of the 13 flower plants. In 2013 year, the most fuzarioz plant gerbera flower diagnosed with the disease incidence rate was equal to 30.1%. Between 2014 and 2015 according to the results of the experiment showed the highest incidence of this disease peony plants. As a result of 3 years of experience in the itog'iz flower lowest (17.9%, 21.0% and 19.3%) fuzarioz disease incidence were identified. This image was a three-year average rate piongulda 28.5%, carnation and tulips 27.0%, the lowest Antirrhinum L. at 19.4%.

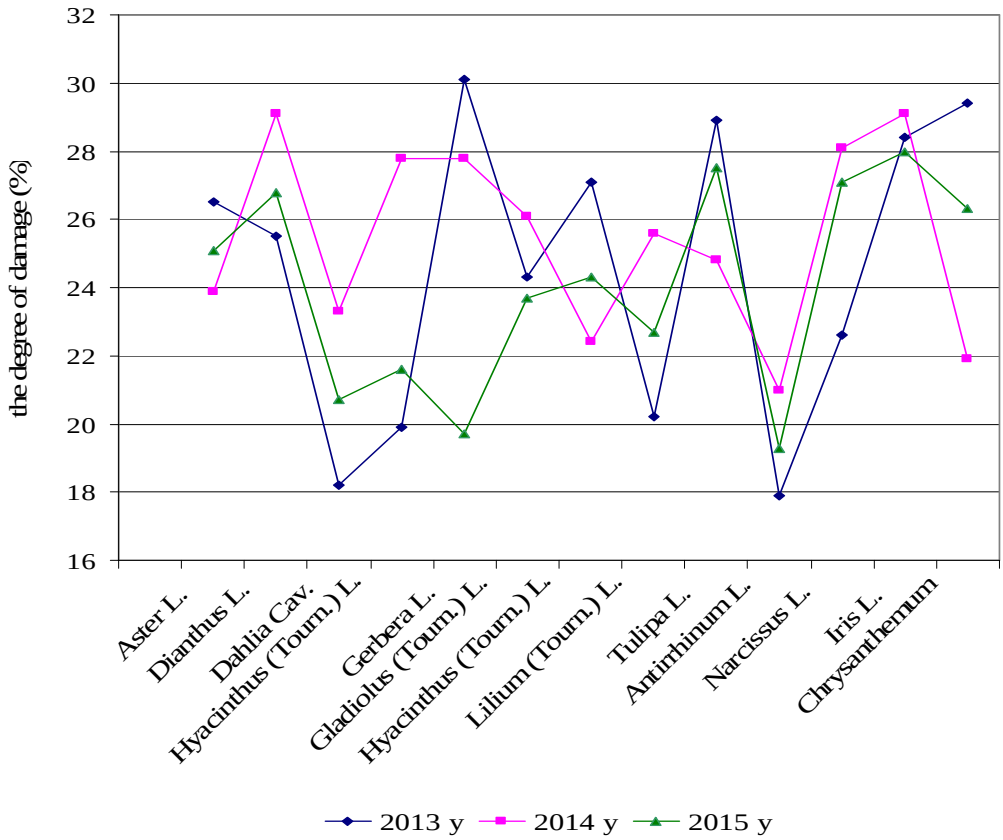

Figure 1: Determining Degree of Damage the Disease Fusarium Occurring in the Decorative Flowers

Biological Control of Fusarium Ornamental Plants

There are numerous reports of high antagonistic activity of Trichoderma against a number of pathogenic microorganisms such as root rot pathogens of crops, Rhizoctonia, Sclerotinia, Blight Wheat, Verticillium, Fusarium wilt of cotton, Fusarium diseases of vegetables and potatoes. S.N. Moskovets and L.A. Sergeev (1961), A.K. Khakimov et al. (1989,1990), B.Abdullaev (1994) and others have established the efficacy of the fungus Trihoderma lignorium to combat diseases of crop plants.

To test the effectiveness of the fungus Trichoderma lignorum in the fight against Fusarium plant we carried out special experiments in lysimeters. For this purpose, each lysimeter $1m^2$ size was introduced on oats Trichoderma grown for 60 and 120 kg/ha and pure spores Trihoderma lignorum 4 and 8 g/l. Served as control option without making Trichoderma. The experiment was conducted 4 times the surface.

The data in Table 1 show that the introduction into the soil Trichoderma allows significantly more healthy plants.

When making Trichoderma normally 60 kg / ha on the biological effectiveness of asters was 43.5%. With the increasing rate of up to 120 kg / ha biological efficiency increased to 54.8%.

Affection of chrysanthemums in the control variant was 28.6%. When making Trichoderma normally 60 kg / ha of the disease has decreased almost twice where biological efficiency was 50.0%.

Increased application rates Trichoderma up to 120 kg / ha possible to obtain a greater number of healthy plants. In this embodiment, the biological efficiency reached 65.0%.

Gladiolus in the control variant Fusarium amazed to 18.5%. Trichoderma at an application rate of 60 kg / ha, reduced the susceptibility of plants Fusarium more than two times, wherein the biological efficiency was 51.3%, and increase the application rate Trichoderma to 120 kg / ha, allowing to increase the biological effectiveness of the antagonist in this embodiment, it was 63, 2%.

The same pattern was observed in the application of Trichoderma on crops of daffodils. Here biological efficiency was 53.7% and 68.6%, respectively.

In addition, we studied the effect of spore masses of the fungus Trichoderma lignorum grown in an artificial environment.

It should be noted that the introduction of such an antagonist in the soil at the rate of 4 g / l of biological efficacy was at asters - 33.0% and chrysanthemums - 44.0% and daffodils - 47.7%.

Increased rates of Trichoderma to 8 g/l to get more healthy seedlings.

Affection of of seedlings of asters in this embodiment was 13.0%, where the biological efficacy was 45.6%. Shoots chrysanthemums, gladioli and daffodils were amazed by 12.8%; 8.7% and 15.0% respectively. Biological efficiency ranged 52,9-54,5%.

Thus, the use of the antagonist fungus Trichoderma lignorum oats grown in an artificial environment and can significantly increase the healthy, friendly shoots.

Of the two methods, the performance advantage is the first option, ie Trihoderma lignorum grown on oats.

Table 1: Biological Efficiency of Trichoderma against Fusarium Rot Flower Plants (Tashkent Region Kibray District "Shomil" and "Adolat" Private Floriculture Farms, 2013-2015 Years)

Variants	Aster L.				Chrysanthemum				Gladiolus (Tourn.) L.				Narcissus L.			
	The Number of Plants, Piece	of these diseased	%	Biological Effects	The Number of Plants, Piece	of these diseased	%	Biological Effects	The Number of Plants, Piece	of these diseased	%	Biological Effects	The Number of Plants, Piece	of these diseased	%	Biological Effects
Control - Without Trichoderma	442	106	23,9	-	311	89	28,6	-	560	104	18,5	-	282	93	32,9	-
Trichoderma Lignorum Oats at 60 kg / ha	457	62	13,5	43,5	356	51	14,3	50,0	57,3	52	9,0	51,3	295	45	15,2	53,7
Trichoderma Lignorum on Oats-120 kg/ha	470	51	10,8	54,8	370	37	10,0	65,0	582	40	6,8	63,2	310	32	10,3	68,6
Trichoderma Lignorum Clean Disputes 4 g/l	449	72	16,1	33,0	324	52	16,0	44,0	568	58	11,9	35,1	294	51	17,3	47,4
Trichoderma Lignorum Pure Spores of 8 g/l	452	59	13,0	45,6	342	44	12,8	54,5	572	50	8,7	52,9	292	44	15,0	54,4

CONCLUSIONS

In three years with fuzarioz disease degree of damage were found of average at Palonia L 28.5%, carnation and tulips from 27.0% and at Antirrhinum L least 19.4%. Chemicals in the fight against diseases ornamental crops is the most effective methods of struggle. Biological effectiveness of the introduction of the antagonist soil rot, wilt in particular - Trichoderma lignorum into the soil at the rate of 4 g / l of biological efficacy was at asters - 33.0% and chrysanthemums - 44.0% and daffodils - 47.7%. Increased rates of Trichoderma to 8 g/l to get more healthy seedlings.

REFERENCES

1. *Abdullayev B.J. Diseases of vegetable crops and their control: Abstract of Doctor. diss. Tashkent, 1994.*
2. *Borovikov B. STATISTICA: the art of data analysis on the computer. Peter, St. Petersburg, (2001) p.656.*
3. *Khakimov A.K. Ways of using Trichoderma in conjunction with other phytosanitary measures to protect the cotton plant from wilt: St. Petersburg, Doctoral Dissertation (1989)*
4. *Kulibaba Yu. Methods of protection of flowering plants from disease. Floriculture ornamental plants in the southern zone of the USSR (Proceedings of the scientific-methodical with broadcasting, comp., In March 1968 in the city of Sochi). P. 125-135.*
5. *Misirova S.A. Systematic types of fungi of allocated and determined types from decorative flowers in conditions region Tashkent. Agricultural science, USA, (2015) Vol.6, No.11, pp. 1387-1392. http://dx.doi.org/10.4236/as.2015.611134*
6. *Misko L.A. Roses. Diseases and protective measures. Science, Moscow, (1986) p. 248.*
7. *Moskovets S.N., Sergeev, L.A. The value of the fungus Trichoderma koningii Oudem. in the fight against diseases of crop plants. House, Armenian SSR (1961) p.133*

8. *Popkov K.V. Basics of plant pathology. Agropromizdat, Moscow (1989) p.399.*
9. *Roberts D. Basics of Plant Protection. Mir, Moscow (1981) p. 254.*
10. *Ruzaeva I.V. Resistance to diseases of garden roses. Samara Bend. Byul. Russia (2007). Vol.16, № 1-2 (19-20), pp. 91-109.*
11. *Simonyan S. Powdery mildew of roses in Yerevan Botanical Garden. Biological Journal. Armenia, Vol.26, №7 (1973), pp. 62-73.*
12. *Sinadsky Y.V, Korneev I.T, Dobrochinskaya I.B. Pests and diseases of decorative flower plants. Science, Moscow, (1982) p.592*
13. *Tarr S. Basics of plant pathology. Mir, Moscow (1985) p. 587.*
14. *Van der Plank I. Plant diseases (epiphytotics and fighting take off). Kolos, Moscow, (1966) p. 359.*
15. *Vanin S.I. Course Forest Phytopathology. Selkhozgiz, Moscow (1933) p.326.*
16. *Zaitsev G.N. Mathematical Statistics in experimental botany. Science, Moscow, (1984) p. 424*

.